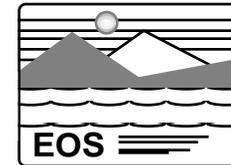


**EOSDIS**



**Earth Observing System (EOS)  
Data and Information System (EOSDIS)**

**Project Status**

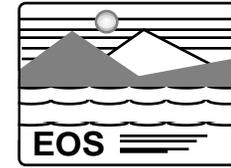
**MODIS Science Team Meeting**

**John Dalton  
Earth Science Data Information System  
(ESDIS) Project  
NASA/Goddard Space Flight Center**

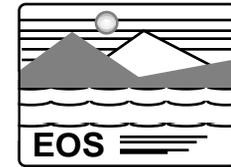
**November 15, 1995**

**EOSDIS**

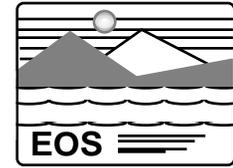
**Outline**



- **Project Status**
- **Science Science Data Processing Toolkit status**
- **Expedited Data Capability**
- **Cost Model Status**
- **Schedule**

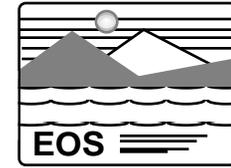


- **ECS Science Data Processing and Communications/  
System Management Segments**
  - **Successful Critical Design Review for TRMM (Release A) completed in August**
  - **Incremental Design Review (IDR) - preliminary design-level review for AM-1 (Release B) completed this week**
- **ECS Flight Operations Segment:**
  - **Successful Critical Design Review for AM-1 completed October 18**
- **Interim Release 1:**
  - **Integration and test in progress at Hughes**
  - **Delivery to GSFC, LaRC, and EDC DAACs this month**



- **Implementing EOSDIS portion of Program Reshape:**
  - **Automation of control centers: minimal staffing 2 shifts per day.**
  - **EDOS simplification - scrubbing of derived requirements, streamlining of development process.**
  - **Use of common EDOS front end design at TDRSS Ground Terminal and at ground stations to enable single approach for EOS spacecraft**
    - **Level 0 processing function colocated with GSFC DAAC to minimize number of facilities to operate**

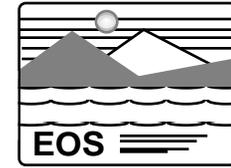
## Science Data Processing Toolkit Status



- All TRMM, AM-1, PM-1 AIRS, SeaWinds, DAO and SAGE III Instrument Teams, plus several DAACs, have successfully accessed and installed the SDP Toolkit.
- IMSL licenses are available for all EOSDIS instruments and have been accessed by the above teams.
- IDL licenses almost totally distributed.
- User Feedback has primarily fallen into three general categories:
  - Installation Problems
  - Bugs
  - Explanation of Documentation

**No overly outstanding problems (most problems are solved via clarification of use)**

- As Beta Science Software delivery approaches, user feedback has increased to about 30 per month. It is expected that this will increase over the next few months.



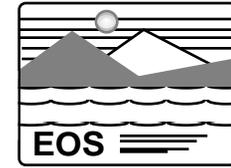
### User Feedback:

- Generally, the toolkit is very well received, fulfills IT requirements, and is well supported by very responsive HAIS staff.

### with some concerns:

- “Frustration that ITs are spending much time debugging the toolkit”.
  - Consistent with early access to a new product.
- Interfaces duplicate Unix features.
  - Toolkit developed to provide vendor-independent interface to system services and data. Need for this is less obvious with general use of SGIs, etc. However, science software must be supported in environment of continuing dynamic evolution of commercial technology

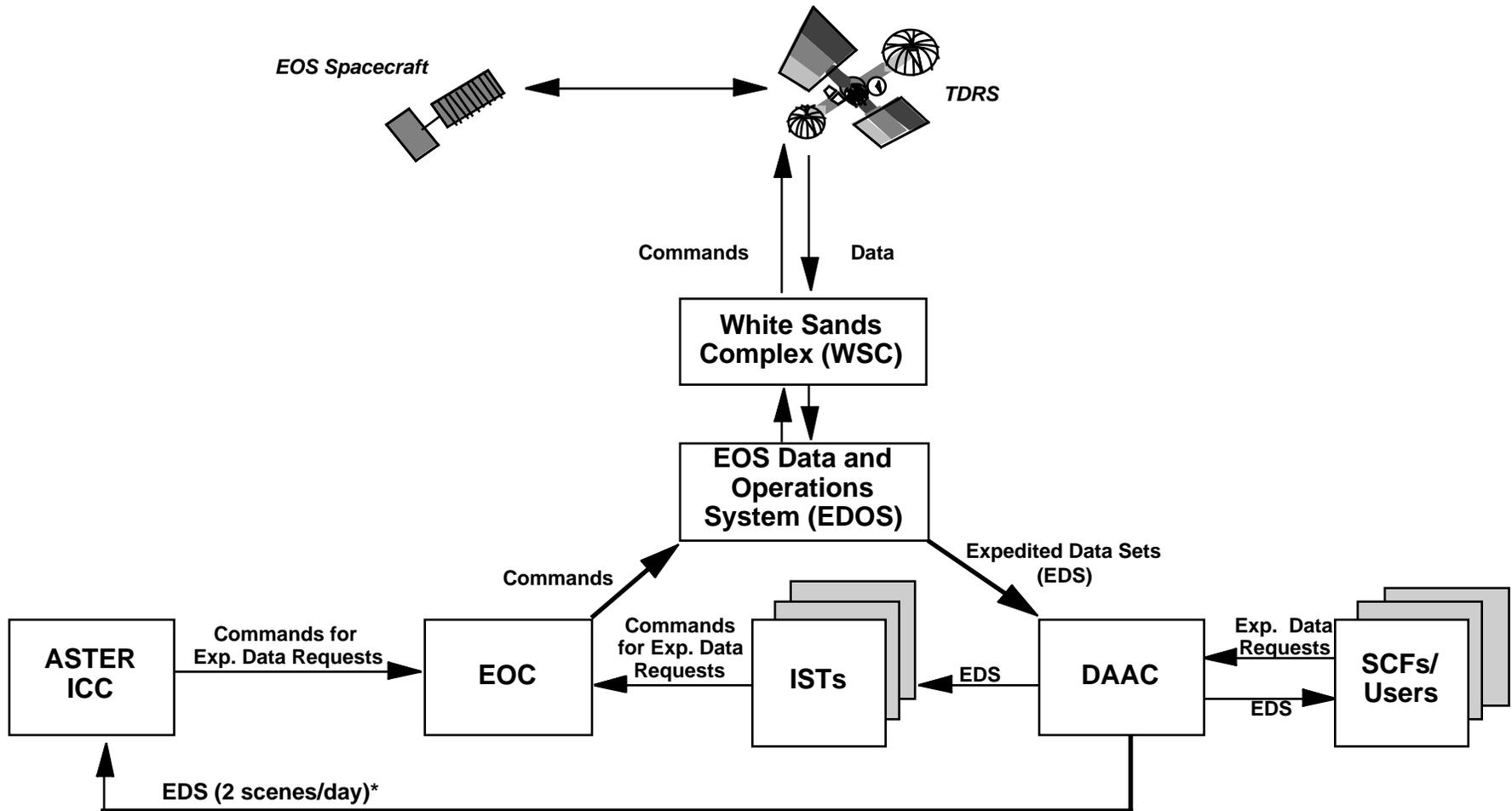
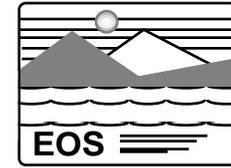
## Expedited Data Status



- **Background:** “Quicklook” data capability deleted in 1994 EOS Rebaselining to reduce cost
- **March 1995:** “Expedited” data capability for instrument operations announced at the SWAMP meeting in response to need expressed by instrument teams.
- **Expedited Data Definition**
  - Raw satellite telemetry processed into time-ordered Level 0 packets within a given TDRSS contact.
  - Expedited Data Sets (EDS) consist of packets that are identified by a “quick look flag” and are queued for processing before all others within a given TDRSS contact.
  - EDS are generated for a given TDRSS contact, and have the same format as the Production Data Sets (PDS).
  - The expedited data service will not remove duplicate packets which may occur across two or more TDRSS contacts.
- **Expedited Data Volumes:** Not to exceed 2% of the total instrument data volume over a 24-hour period
  - **ASTER:** Maximum 1 minute of data per orbit at 89.2 Mbps
    - Japan/ERSDAC requirement: 2 scenes per day
    - US Science Team requirement: TBR

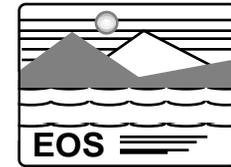
# EOSDIS

## Expedited Data Flow Concept



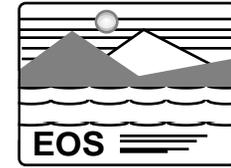
\* ASTER GDS/ERSDAC Requirement

## Expedited Data Operations Concept



- **All requests for expedited data will go through the EOS Operations Center (EOC); no direct requests to EDOS.**
  - Expedited data requests will be scheduled by the Instrument Operations Teams (IOTs) as part of the normal planning and scheduling process.
- **Expedited data will be delivered to a DAAC for pick-up by users.**
  - Instrument Teams may “poll” the DAAC periodically to determine whether the data it requested has been staged.
  - Instrument Teams (ERSDAC for ASTER) may make arrangements through the EOSDIS IMS for a “subscription service” that will forward expedited products to SCFs or ERSDAC/ASTER GDS as they are received at the DAAC.
- **Timeliness:** Expedited data will generally be delivered to the DAAC within 3 hours of receipt by EDOS. Redundant hardware and communications links to guarantee delivery time removed in Rebaselining.
- **Data Purging:** Expedited data from a given TDRSS contact will remain at the DAAC for 48 hours (15 days for ASTER), after which time it will be purged.

## Cost Validation, Modeling, and Communication - Status



### Cost models:

- **Analysis of Federation alternatives:**
  - Developed analysis process for network costs
  - Identified cost elements affected by Federation alternatives
  - Initiating development of spreadsheet model to represent these factors
- **Requirements impact on cost:**
  - Accelerating mapping of Level 2 requirements to operations concept to cost elements
- **End-to-end model:**
  - **Barkstrom model - Will represent detailed process flows and parameterized costs for hardware elements. Thorough, bottoms-up model**
  - **Project evaluating tools for use in development of top-down, system-wide model integrating results of detailed subsystem models. Less detailed than Barkstrom model, but needed to analyze top level trades. Will be closely coordinated with Barkstrom model to minimize effort and to assure consistency.**





# Metadata

- **Granule Metadata**
  - Produced by PGE for Granules
  - Read/write to HDF EOS software provided in TK5
  - Adheres to PVL standard
  - Documented in TK5 Delivery - Toolkit Users Guide, Appendix J
  - Appendix J describes required Core Metadata
  - Data type information available in Data Dictionary provided with TK5
  - Update due December 18 (Minor changes for Instrument Teams)
- **Collection/Product Metadata**
  - Collected at AI&T and when available/appropriate
  - GUI Tool will support ingest when establishing product
  - Adheres to PVL standard
  - Described in Preliminary User View, and DID 311
  - Update due December 18
- **Points of Contact for questions/instructions/problems**
  - IST Support in ECS Science Support Office
  - ECS Data Model
    - Graham Bland, 301-925-0433, [grahamb@eos.hitc.com](mailto:grahamb@eos.hitc.com)
    - Janet Hylton, 301-925-0466, [janet@eos.hitc.com](mailto:janet@eos.hitc.com)
  - ESDIS
    - Ted Meyer, 301-286-9330, [ted@ulabsgi.gsfc.nasa.gov](mailto:ted@ulabsgi.gsfc.nasa.gov)



# Gridded Data

- **NMC Implementation**
  - SeaWiFs Format has been Recommended
  - HDF EOS Grid will be used in order to leverage off tools development
  - SeaWiFs support “grandfathered” for ECS services
- **HDF EOS Grid Implementation**
  - Supports multiple projections into rectangular grids
  - Will support projections into “Ragged Array” (ISCCP-type) grids by using SDS
  - Prefers projection/gridding methodologies that are accesible using “straight” HDF tools
  - Specification is extensible to support additional projects/grid schemes
  - Specification: December 1995 followed by DMWG review
- **Point of Contact for Grid and HDF EOS Specification**
  - IST Support in ECS Science Support Office
  - ECS HDF EOS Team
    - Brand Fortner, 301-925-0779, bfortner@eos.hitc.com
  - ESDIS
    - Ted Meyer, 301-286-9330, ted@ulabsgi.gsfc.nasa.gov



# HDF EOS Schedule

- |                                                                                                  | <b>Finish</b>                |
|--------------------------------------------------------------------------------------------------|------------------------------|
| • <b>HDF EOS Specification</b>                                                                   | <b>12/20/95</b>              |
| - Structural Metadata, Point, Grid, Swath, Data Dictionary et al                                 |                              |
| • <b>One-on-Ones with Instrument Teams to Review Spec and Analyze API/Library Implementation</b> | <b>Ongoing (as Required)</b> |
| • <b>Data Model Working Group (DAAC, IT, Tirekicker) Specification Review</b>                    | <b>12/20/95-2/96</b>         |
| • <b>Version 1 API for TRMM</b>                                                                  | <b>12/20/95</b>              |
| • <b>Prototype API for all structures</b>                                                        | <b>02/28/96</b>              |
| - Initial Prototype for Swath Currently Available                                                |                              |
| • <b>Full operational version</b>                                                                | <b>06/21/96</b>              |
| • <b>Integration into Rel. B DSS</b>                                                             | <b>03/15/97</b>              |
| • <b>Long-term maintenance</b>                                                                   | <b>Ongoing</b>               |